

IN THE CLAIMS:

Claims 1, 4, 6, 9, 11, 13-22, 24-28, 30-39, and 41-48 have been amended herein. All of the pending claims 1 through 48 are presented below. This listing of claims will replace all prior versions and listings in the application. Please enter these claims as amended.

1. (Currently Amended) A contact structure, comprising:
a substantially planar substrate; and
at least one conductive compliant contact including:
a portion fixed within a portion of the substrate; and
at least one laterally unsupported portion integral with the portion fixed within the portion of the substrate, ~~laterally unsupported~~ within a thickness of the substrate and extending beyond one side thereof.
2. (Original) The contact structure of claim 1, wherein the at least one compliant contact has a generally rectangular cross-section perpendicular to a longitudinal extent thereof.
3. (Original) The contact structure of claim 1, wherein the substrate is further configured with a recess extending peripherally about the at least one laterally unsupported portion of the at least one compliant contact.
4. (Currently Amended) The contact structure of claim 1, further comprising a conductive element operably coupled to the portion of the at least one compliant contact fixed within ~~a~~ the portion of the substrate and extending across a side thereof opposite ~~the~~ the one side beyond which the at least one laterally unsupported portion extends.
5. (Original) The contact structure of claim 1, wherein the at least one laterally unsupported portion of the at least one compliant contact is orthogonally compliant with respect to a plane of the substrate.

6. (Currently Amended) The contact structure of claim 1, wherein the at least one laterally unsupported portion comprises two laterally unsupported portions with the portion fixed within ~~a~~ the portion of the substrate therebetween, each of the two laterally unsupported portions extending from the substrate on opposing sides thereof.

7. (Original) The contact structure of claim 6, wherein the substrate is further configured with a recess extending peripherally about each of the two laterally unsupported portions of the at least one compliant contact.

8. (Currently Amended) The contact structure of claim 1, further comprising:
another conductive compliant contact, including:
a portion fixed within a portion of the substrate; and
at least one laterally unsupported portion integral with the portion fixed within the portion of the substrate, ~~laterally unsupported~~ within a thickness of the substrate and extending beyond another side thereof; and
a conductor extending between the one side and the another side of the substrate and operably coupled to the portion of each of the at least one compliant contact and the another compliant contact fixed within respective portions of the substrate.

9. (Currently Amended) The contact structure of claim 8, wherein the substrate is further configured on the one side with a first recess extending peripherally about the at least one laterally unsupported portion of the at least one compliant contact and on the another side with a second recess extending peripherally about the at least one laterally unsupported portion of the another compliant contact.

10. (Original) The contact structure of claim 1, further including a dielectric layer laterally surrounding the portion of the at least one compliant contact fixed within the portion of the substrate.

11. (Currently Amended) A contactor card for use in testing a semiconductor substrate, comprising:
a substantially planar substrate; and
a plurality of conductive compliant contacts carried by the substrate and arranged in a pattern selected for contact with contact pads carried by a semiconductor substrate to be tested, each compliant contact of the plurality including:
a portion fixed within a portion of the planar substrate; and
at least one laterally unsupported portion integral with the portion fixed within the portion of the substrate, ~~laterally unsupported~~ within a thickness of the substrate and extending beyond one side thereof.
12. (Original) The contactor card of claim 11, wherein the plurality of compliant contacts each have a generally rectangular cross-section perpendicular to a longitudinal extent thereof.
13. (Currently Amended) The contactor card of claim 11, wherein the planar substrate is further configured with a recess extending peripherally about the at least one laterally unsupported portion of each of the plurality of compliant contacts.
14. (Currently Amended) The contactor card of claim 11, further comprising a conductive element operably coupled to the portion of at least some of the plurality of compliant contacts fixed within ~~a~~ the portion of the substrate and extending across a side thereof opposite ~~the~~ the one side beyond which the at least one laterally unsupported portion extends.
15. (Currently Amended) The contactor card of claim 11, wherein the at least one laterally unsupported portion of ~~the~~ each of the plurality of compliant contacts is orthogonally compliant with respect to a plane of the planar substrate.

16. (Currently Amended) The contactor card of claim 11, wherein the at least one laterally unsupported portion comprises, in at least some compliant contacts of the plurality, two laterally unsupported portions with the portion fixed within ~~a~~ the portion of the planar substrate therebetween, each of the two laterally unsupported portions extending from the planar substrate on opposing sides thereof.

17. (Currently Amended) The contactor card of claim 16, wherein the planar substrate is further configured with a recess extending peripherally about each of the two laterally unsupported portions of the at least some of the plurality of compliant contacts.

18. (Currently Amended) The contactor card of claim 11, further comprising:
another conductive compliant contact associated with each of at least some of the plurality of compliant contacts, including:

a portion fixed within a portion of the planar substrate; and
at least one laterally unsupported portion integral with the portion fixed within the portion of the planar substrate, ~~laterally unsupported~~ within a thickness of the planar substrate and extending beyond another side thereof; and
a conductor extending between the one side and the another side of the planar substrate and operably coupled to the portion of each of the associated compliant contacts of the at least some of the plurality of compliant contacts fixed within respective portions of the planar substrate.

19. (Currently Amended) The contactor card of claim 18, wherein the planar substrate is further configured on the one side with a first recess extending peripherally about the at least one laterally unsupported portion of one compliant contact of the associated compliant contacts of the plurality of compliant contacts and on the another side with a second recess extending peripherally about the at least one laterally unsupported portion of the compliant contact of the associated compliant contacts of the at least some of the plurality of compliant contacts.

20. (Currently Amended) The contactor card of claim 11, further including a dielectric layer laterally surrounding the portion of ~~the~~ each of the plurality of compliant contacts fixed within the portion of the planar substrate.

21. (Currently Amended) A method of forming a compliant contact structure, comprising:
forming a first contact slot at a first location extending between ~~one side and a second~~, a first and a second opposing side of a substrate;
filling the first contact slot with at least one conductive material to form a conductive pin;
removing substrate material from the one side of the substrate peripherally about a portion of the conductive pin and leaving another portion of the conductive pin fixed within the substrate; and
reducing a thickness of the substrate from the one side to cause an end of the portion of the conductive pin to extend therebeyond.

22. (Currently Amended) The method of claim 21, wherein forming ~~a~~ the contact slot comprises ablating a contact slot through the substrate.

23. (Original) The method of claim 21, further comprising forming the substrate from one of a conductive material and a semiconductive material, and lining the contact slot with a layer of dielectric material prior to filling the contact slot with the at least one conductive material.

24. (Currently Amended) The method of claim 21, wherein removing the substrate material comprises:

forming a contact bulk pit peripherally around the portion of the conductive pin from the one side of the substrate while leaving sidewalls of the substrate material surrounding the portion of the conductive pin; and
removing the sidewalls of the substrate material to expose the portion of the conductive pin.

25. (Currently Amended) The method of claim 24, wherein forming ~~a~~ the contact bulk pit is effected by laser ablation.

26. (Currently Amended) The method of claim 24, wherein removing the sidewalls of the substrate material is effected by chemical etching.

27. (Currently Amended) The method of claim 26, wherein reducing ~~a~~ the thickness of the substrate from the one side to cause ~~an~~ the end of the portion of the conductive pin to extend therebeyond is effected by chemical etching concurrently with removing the sidewalls of the substrate material.

28. (Currently Amended) The method of claim 21, wherein reducing ~~a~~ the thickness of the substrate from the one side to cause ~~an~~ the end of the portion of the conductive pin to extend therebeyond is effected by chemical etching.

29. (Original) The method of claim 21, further comprising forming a conductive element contiguous with the portion of the conductive pin fixed with the substrate and on the second, opposing side of the substrate.

30. (Currently Amended) The method of claim 21, further comprising removing the substrate material from the second, opposing side of the substrate peripherally about yet another portion of the conductive pin and reducing a thickness of the substrate from the second, opposing side to cause an end of the yet another portion of the conductive pin to extend therebeyond.

31. (Currently Amended) The method of claim 30, wherein removing the substrate material from the second, opposing side of the substrate comprises:
forming a contact bulk pit peripherally around the yet another portion of the conductive pin from the second, opposing side of the substrate while leaving sidewalls of the substrate material surrounding the yet another portion of the conductive pin; and
removing the sidewalls of the substrate material to expose the yet another portion of the conductive pin.

32. (Currently Amended) The method of claim 31, wherein forming ~~a~~ the contact bulk pit is effected by laser ablation.

33. (Currently Amended) The method of claim 32, wherein removing the sidewalls of the substrate material is effected by chemical etching.

34. (Currently Amended) The method of claim 33, wherein reducing ~~a~~ the thickness of the substrate from the second, opposing side to cause ~~an~~ the end of the yet another portion of the conductive pin to extend therebeyond is effected by chemical etching concurrently with removing the sidewalls of the substrate material.

35. (Currently Amended) The method of claim 21 further comprising:
forming second and third contact slots at second and third locations adjacent the first contact slot and extending between a first ~~side and~~ and a second opposing side of a substrate;
filling the second and third contact slots with conductive material to form second and third conductive pins; and
removing substrate material from the ~~second, second~~ second opposing side of the substrate peripherally about a portion of the second conductive pin and leaving another portion of the second conductive pin fixed within the substrate;
reducing a thickness of the substrate from the ~~second, second~~ second opposing side to cause an end of

the portion of the second conductive pin to extend therebeyond; and operably coupling the another portion of the conductive pin with the another portion of the second conductive pin by extending a conductive trace between the another portion of the conductive pin and the third conductive pin and another conductive trace between the another portion of the second conductive pin and the third conductive pin.

36. (Currently Amended) A method of testing a semiconductor substrate, comprising: placing a substantially planar semiconductor substrate adjacent and substantially parallel to a substantially planar substrate of a contactor card; aligning at least one contact pad of the substantially planar semiconductor substrate with a compliant contact of a compliant contact structure carried by ~~a~~ the contactor card, the compliant contact structure including:

- ~~at~~ the compliant contact, including:
- a portion fixed within a portion of the substrate; and
- at least one laterally unsupported portion integral with the portion fixed within the portion of the substrate, ~~laterally unsupported~~ within a thickness of the substrate and extending beyond one side thereof;

pressing the semiconductor substrate against the contactor card substantially transversely to a plane of the substrate of the contactor card ~~substrate~~ to cause ~~and~~ an end of the at least one laterally unsupported portion extending beyond the one side of the substrate of the contactor card ~~substrate~~ to contact the at least one contact pad of the semiconductor substrate and induce flexure of the at least one laterally unsupported portion; and applying at least one test signal from a tester operably coupled to the contactor card through the compliant contact.

37. (Currently Amended) The method of claim 36, further comprising arresting flexure of the at least one laterally unsupported portion by contacting the one side of the substrate of the contactor card ~~substrate~~ with the semiconductor substrate.

38. (Currently Amended) The method of claim 37, further comprising at least partially receiving the at least one contact pad of the semiconductor substrate within a recess in the one side of the substrate of the contactor card ~~substrate~~ peripherally surrounding the at least one laterally unsupported portion.

39. (Currently Amended) A semiconductor substrate testing system, comprising: a contactor card configured for operable coupling with a semiconductor substrate to be tested, including:

a substantially planar substrate; and

a plurality of conductive compliant contacts carried by the substrate of the contactor card ~~substrate~~ and arranged in a pattern selected for contact with contact pads carried by ~~a~~ the semiconductor substrate to be tested, each compliant contact of the plurality including:

a portion fixed within a portion of the substrate of the contactor card; and

at least one laterally unsupported portion integral with the portion fixed within the portion of the substrate of the contactor card, ~~laterally unsupported~~ within a thickness of the substrate of the contactor card and extending beyond one side thereof; and

a tester operably coupled to the contactor card and configured to apply test signals to the semiconductor substrate through the contactor card.

40. (Original) The testing system of claim 39, wherein the plurality of compliant contacts each have a generally rectangular cross-section perpendicular to a longitudinal extent thereof.

41. (Currently Amended) The testing system of claim 39, wherein the substrate of the contactor card ~~substrate~~ is further configured with a recess extending peripherally about the at least one laterally unsupported portion of each of the plurality of compliant contacts.

42. (Currently Amended) The testing system of claim 39, further comprising a conductive element operably coupled to the portion of at least some of the plurality of compliant contacts fixed within ~~a~~ the portion of the substrate of the contactor card ~~substrate~~ and extending across a side thereof opposite the side beyond which the at least one laterally unsupported portion extends.

43. (Currently Amended) The testing system of claim 39, wherein the at least one laterally unsupported portion of ~~the~~ each of the compliant contacts of the plurality of compliant contacts is orthogonally compliant with respect to a plane of the substrate of the contactor card ~~substrate~~.

44. (Currently Amended) The testing system of claim 39, wherein the at least one laterally unsupported portion comprises, in at least some compliant contacts of the plurality, two laterally unsupported portions with the portion fixed within ~~a~~ the portion of the substrate of the contactor card ~~substrate~~ therebetween, each of the two laterally unsupported portions extending from the substrate of the contactor card ~~substrate~~ on opposing sides thereof.

45. (Currently Amended) The testing system of claim 44, wherein the substrate of the contactor card ~~substrate~~ is further configured with a recess extending peripherally about each of the two laterally unsupported portions of the at least some of the plurality of compliant contacts.

46. (Currently Amended) The testing system of claim 39, further comprising:
another conductive compliant contact associated with each of at least some of the plurality of compliant contacts, including:
a portion fixed within a portion of the substrate of the contactor card ~~substrate~~; and
at least one laterally unsupported portion integral with the portion fixed within the portion of the substrate of the contactor card ~~substrate~~, ~~laterally unsupported~~ within a thickness of the substrate of the contactor card ~~substrate~~ and extending beyond

another side thereof; and
a conductor extending between the one side and the another side of the substrate of the contactor card ~~substrate~~ and operably coupled to the portion of each of the associated compliant contacts of the at least some of the plurality of compliant contacts fixed within respective portions of the substrate of the contactor card.

47. (Currently Amended) The testing system of claim 46, wherein the substrate of the contactor card ~~substrate~~ is further configured on the one side with a first recess extending peripherally about the at least one laterally unsupported portion of one compliant contact of the associated compliant contacts of the plurality of compliant contacts and on the another side with a second recess extending peripherally about the at least one laterally unsupported portion of the at least some of the plurality of compliant-contact contacts of the associated compliant contacts.

48. (Currently Amended) The testing system of claim 39, further including a dielectric layer laterally surrounding the portion of ~~the~~ each of the plurality of compliant contacts fixed within the portion of the substrate of the contactor card ~~substrate~~.

IN THE DRAWINGS:

The attached sheets of drawings include changes to FIGS. 3, 5, 6B, 7, and 8. These sheets, which include FIGS. 3, 5, 6B, 7, and 8, replace the original sheets including FIGS. 2F, 3, 5, 6A, 6B, 7, and 8.